CLAIMS:

1. An assembly for transferring a fluid between a vessel having a body with an open end and a slidable piston positioned within the body through the open end and a vial having a penetrable seal, the assembly comprising:

a) a housing having first and second open ends and a bore extending between the first and second open ends, the housing being removably connectable to the piston;

b) a conduit having first and second ends and first and second apertures adjacent to the first and second ends, respectively, the conduit longitudinally slidable within the bore between a retracted position in which the first aperture is positioned within at least one of the housing and the piston when the housing is connected to the piston, and an activated position in which the first aperture protrudes through the piston into the body of the vessel when the housing is connected to the piston;

c) a vial socket assembly having a vial socket for receiving and engaging at least a portion of the vial including the penetrable seal and a hollow piercing member having a first open end in fluid communication with the conduit and a second open end for piercing the penetrable closure, the vial socket assembly moveable longitudinally relative to the housing in concert with the conduit,

whereby advancing the vial socket assembly longitudinally towards the housing advances the conduit from the retracted position to the activated position to fluidly connect the vessel and the vial.

2. An assembly according to claim 1 wherein the first end of the conduit has a piercing member and the aperture is an opening adjacent to a tip of the piercing member.

3. An assembly according to claim 2 further comprising a hub disposed between the second end of the conduit and the first open end of the hollow piercing member.

4. An assembly according to claim 3 wherein the vial socket assembly further comprises a post releasably receivable within the hub.

5. An assembly according to claim 4 wherein the hub forms a female luer slip and the post forms a male luer slip that is releasably receivable in the female luer slip.

6. An assembly according to claim 5 wherein the bore of the housing has a first portion, a second portion adjacent to the first portion, and a shoulder formed between the first and second portions.

7. An assembly according to claim 6 further comprising a resilient biasing member positioned between the shoulder and the hub to bias the conduit into the retracted position.

8. An assembly according to claim 7 wherein the resilient biasing member is a spring.

9. An assembly according to claim 1 wherein the first end of the conduit has a blunt end and the first aperture is an opening on a sidewall of the conduit.

10. An assembly according to claim 9 wherein the second end of the conduit is integrally connected to the vial socket assembly.

11. An assembly according to claim 1 further comprising a retaining member in the vial socket for retaining a vial within the vial socket.

12. An assembly according to claim 11, wherein the retaining member comprises an annular ridge on an interior surface of the vial socket, the annular ridge having a smaller diameter than the diameter of the vial socket.

13. An assembly according to claim 11, wherein the retaining member comprises a plurality of retaining latches provided in the vial socket.

14. An assembly according to claim 1 wherein the vessel is a syringe having a neck with a needle mount for removably mounting a needle thereon and a flange adjacent the open end.

15. An assembly according to claim 14 further comprising a piston backstop positioned adjacent the flange, the piston backstop having a retaining member for retaining the housing in spaced relation from the piston.

16. An assembly according to claim 15 wherein the piston backstop is shaped and sized to slidably receive the housing.

17. An assembly according to claim 16 wherein the piston backstop is removably connectable to the flange.

18. An assembly according to claim 17 wherein the syringe is glass.

19. An assembly according to claim 18 further comprising a sheath assembly positioned over the neck of the syringe, the sheath assembly removably connectable to the piston backstop.

20. An assembly according to claim 15 wherein the syringe is plastic and the piston backstop is integrally molded with the syringe.

21. An assembly according to claim 1 wherein the vessel is a cartridge having a neck with a penetrable closure and a cap to retain the penetrable closure thereon.

22. An assembly according to claim 21 further comprising a sheath assembly positioned over the neck of the cartridge and a piston backstop removably connectable to the sheath assembly, the piston backstop having a retaining member for retaining the housing in spaced relation from the piston.

23. An assembly according to claim 21 further comprising a piston backstop positioned adjacent the open end of the cartridge, the piston backstop having a retaining member for retaining the housing in spaced relation from the piston.

24. An assembly according to claim 23 wherein the cartridge is plastic and the piston backstop is integrally molded with the cartridge.

25. A piston backstop for use with a syringe having a body with an open end and a slidable piston positioned within the body through the open end, the piston backstop comprising:

a) a bottom plate having an aperture sized to permit the passage of a plunger rod therethrough;

b) a pair of opposing generally coplanar top plate extensions spaced apart to permit the passage of the plunger rod therethrough;

c) a pair of side walls connecting the bottom plate to the respective top plate extensions thereby creating a pair of gaps between the bottom plate and the respective top plate extensions, the gaps sized to receive a flange of a syringe therein;

d) a retaining member for retaining the plunger rod in spaced relation from the piston.

26. A piston backstop according to claim 25, wherein the retaining member is an internal thread in the aperture to matingly engage with an external thread on a plunger rod.

27. A piston backstop according to claim 25, further comprising a collar extending from the aperture in the bottom plate.

28. A piston backstop according to claim 27, wherein the retaining member is an internal thread in the collar to matingly engage with an external thread on a plunger rod.